Vitamin B12

Vitamin B12 (cyanocobalamin), along with other B vitamins, helps turn carbohydrates into glucose and to metabolize fats and proteins. B12 also helps to make red blood cells, to synthesize and repair DNA and RNA, and to form nerve tissue and neurotransmitters.

B12 is an essential nutrient that is only found in animal protein (more specifically, from the animal's bacteria). Celiac disease, Crohn's disease, pancreatic disease, weight loss surgery, AIDS, ulcers, long-term antibiotic use and age (50+) are all risk factors forB12 deficiency. And most experts say that vegetarians and vegans must supplement B12 in order to avoid deficiency.

Vitamin B12 deficiency

The requirement for vitamin B12 is very low, but it is absolutely essential. A mild vitamin B12 deficiency results in weakness and fatigue. A more serious deficiency causes shortness of breath, nervousness, numbness and tingling in extremities, and problems with balance. A severe deficiency can lead to nerve damage, pernicious anemia, paranoia, confusion, problems with memory, depression, delusions, and brain damage.

According to the University of Maryland Medical Center, the following drugs may suppress absorption of Vitamin B12 or cause you to lose more in your urine: a**nti-seizure medications, chemotherapy medications, colchicine, medications used to lower** cholesterol, medications used to reduce stomach acid, and a diabetes medication. Vitamin B12 can also interfere with Tetracycline and Doxorubicin. (For more information on drug interactions, see the link below.)

One of the biggest problems with diagnosing B12 deficiency is

that the serum B12 test that doctors usually perform only identifies a fraction of the people who are deficient. Fortunately, more sensitive and conclusive testing for B12 deficiency is now available.

As always, when taking a B vitamin supplement, it is best to take B12 along with the other B vitamins in a B complex supplement because any long-term use of a single B vitamin will cause an imbalance in the others, and high doses of folic acid (B9) can mask a B12 deficiency.

Treatments and prevention with B_{12}

B_{12} has long been used to treat fatigue and general malaise. There is a possibility that supplementation will improve sperm count. B_9 (folic acid) and B12 may help prevent breast cancer. B complex (especially B_{12}, B_6, and B_9) help to lower homocysteine levels. Age-related macular degeneration (a condition that causes blindness in the elderly) may be prevented with B_{12} and B9.

Foods rich in vitamin B_{12}

Natural food sources high in vitamin B_{12} include the following: sardines, salmon, tuna, cod, lamb, shrimp, scallops, beef, yogurt, and milk.

Can human bacteria produce B_{12}?

Vegans and vegetarians are at high risk for serious B12 deficiency. Many argue that this is not the case, that with a proper, healthy vegan or vegetarian diet, the bacteria in our digestive system will produce B12. While this is true, it is not absorbed. B_{12} is absorbed in the ileum, the last section of the small intestine, while our bodies produce B_{12} in the large intestine. Therefore, it cannot be absorbed.

How do vegan animals get vitamin B_{12}? Many species eat their feces and other animal’s feces. They also eat root vegetables

with dirt, which sporadically has small amounts of the vitamin. In the 1950s, vegans with B_{12} deficiencies volunteered to eat B12 extracted from their own feces. The experiment worked—it eliminated their deficiency. Obviously, there is a better way.

Although B_{12} is water soluble and is not stored in the fat, it is the one B vitamin that is stored in the body, in the liver. Many vegetarians and vegans continue their diet choice without supplementation for a few years without problems. Scientists speculate that this may be due to B_{12} reserves. One depleted, deficiency will result.

Some people claim to get enough vitamin B_{12} from their own gardens, growing their own food outside with good soil and eating some of the organic produce without washing it. This practice places them at high risk of parasitic infection, but this practice can yield positive results if their diets are very clean. Tempeh, miso, sea vegetables, and other plant foods are sometimes reported to contain vitamin B12, but these are not reliable sources. The good news is, B_{12} supplementation is easy. Lots of foods are fortified with B12, but if you don’t do pre-packaged, processed foods, then you’ll need to supplement. There are plenty of supplements available and some nutritional yeasts are good sources of B_{12}, but it is important that the yeast comes from good sources. We recommend non-active saccharomyces cerevisiae nutritional yeast.

Remember, if you choose vitamin supplementation, B vitamins should be taken together in a B-complex form. Shillington’s Total Nutrition recipe (click here to see) should offer enough B vitamins (and it has plenty of B_{12}) for most people, though many people may benefit from the Total Nutrition and a B complex supplement. Make sure any B vitamins you consume come from a reputable source.

Further Reading:

- *B Vitamins, Nature’s Valium and So Much More*

Recommended Supplements:

- B-Complex #12 – Thorne Research
- Shillington’s Total Nutrition Formula

Sources:

- Make your own Homemade Multivitamin and Mineral Formula University of Maryland Medical Center
- World’s Healthiest Foods
- Ultimate Guide to B Vitamins
- What Everyone (Especially Vegetarians) Should Know About B12 Deficiency
- Health basics: What is nutritional yeast?
- Are Intestinal Bacteria a Reliable Source of B12?